Title: Losing Our Students To Fat Grams

Link to Outcomes:

- **Problem Solving** Students will interpret information provided by charts and apply this data to new problem situations.
- **Communication** Students will read, write and discuss mathematics using signs, symbols, and appropriate language.
- **Connections** Students will apply mathematics to improve their eating habits.
- **Number Sense & Numeration** Students will understand, represent, and use numbers in a variety of equivalent forms in real world situations.
- **Whole Number Computation** Students will compute and estimate with whole numbers, decimals and percentages.
- **Statistics** Students will read and interpret charts, organize data, make inferences, and use the data to make decisions about eating habits.

Brief Overview:

This lesson examines the relationship between calories and fat content found in everyday foods. The students will be expected to compute percentage of fat grams from calories, as well as plan a well-balanced meal. They must take into account the Food Guide Pyramid and national guidelines for fat percentages.

Grade/Level:

Grades 5 - 6

Duration/Length:

Actual class time should be about 2 - 3 class periods. Additional time may be required if review of determining percentage is necessary.

Prerequisite Knowledge:

Students should be able to multiply whole numbers with at least two digits. They should have background knowledge of percentage calculation and estimation. They should be familiar with reading and interpreting charts. Students should have been exposed to the Food Guide Pyramid (A Guide to Daily Food Choices) as well as basic nutritional information.

Objectives:

Students will:

- read and interpret a chart to track their intake of fat calories.
- compute the percentage of fat calories in certain foods and total meals.
- plan a well-balanced meal that has less than 30% calories from fat.
- understand the importance of minimizing their fat intake.
- round numbers to the nearest hundredth.
- rank percentages in order.
- find the average of percentages.

Materials/Resources/Printed Materials:

- Calculating Fat Calories Worksheet
- Food Guide Pyramid chart
- Food Choice Chart
- Menu Planning Worksheet
- Calculators

Development/Procedures:

- Write the following key statement on the board: "In order to lose weight, most people don't have to change how much they eat, they just need to change what they eat." Discuss the meaning of this statement.

- Pass out and discuss the Food Guide Pyramid. Make sure students understand that while most foods are good for you, different amounts of each food are recommended daily (More breads, cereals, fruits and vegetables - less sweets). How does the food pyramid relate to the key statement?

- Pass out the food chart "Computing Fat Calories" and calculators. Explain that they will do some activities that will help you to better understand the key statement. Walk students through breakfast on "Computing Fat Calories". The first row has been completed. Multiply fat grams x 9 to determine the number of calories from fat. Use this information in the fourth column. To get the percentage of calories from fat, divide the calories from fat by the total calories.

- Have students predict which food for lunch and which food for dinner will have the highest percentage of calories from fat. Students should then complete the chart individually, in pairs, or in groups (depending on the proficiency of the students). Compare results to predictions.

- Ask students to look at the Food Guide Pyramid to check out relationships between percentage of calories from fat and where it is on the pyramid. Discuss these questions:

  Potatoes are a vegetable, so why are french fried potatoes so high in fat?
  What makes Italian dressing high in fat?
  Compare the % of calories from fat in the different types of milk. What do you notice?

- Have the students find the average percentage of calories that come from fat for each meal. Explain to students that dieticians and nutritionists recommend that foods and meals have less than 30% of calories from fat. Ask them what the implications are for the foods and meals on their list.

- Create a scenario similar to the following:

  The cafeteria staff has heard how well you count fat calories and has decided to reward you for your hard work. They have planned a "student-choice" lunch day, and you and your classmates get to plan the menu. Using the "Food Chart," plan a well-balanced meal that has less than 30% fat. Record your meal and the correct information on the "Menu Planning Worksheet." Remember to choose a variety of food from the Food Guide Pyramid, and your meal should have less than 30% calories from fat.

Evaluation:

After students have completed their menu planning worksheets, they can be assessed by using the following rubric:

4: - Fat percentage of menu food is 30% or less - Food Guide Pyramid standards are consistently applied	**3:** - Fat percentage of menu food is 40 to 31% - Food Guide Pyramid standards are sometimes applied
2: - Fat percentage of menu food is 50 to 41% - Food Guide Pyramid standards are rarely applied	**1:** - Fat percentage of menu food is greater than 51% - Food Guide Pyramid standards are never applied

Extension/Follow Up:

Language Arts:

1. Students will write a persuasive letter to the school board recommending a particular healthy lunch including data to support their view.
2. Students will write a paragraph to inform others how this information can change lives.

Math/Science:

1. Students will keep track of their eating habits over a period of time, analyze this information, and use it to plan a more healthy diet with less than 30% calories from fat.
2. Students will research calories used in different activities and how exercising affects the burning of calories.
3. Students will analyze foods using nutritional labels.
4. Students will invent a new kind of food and create a nutritional label for it.

Social Studies:

1. Students will analyze staple foods from different countries and compare to longevity rates of the population.

Resources:

Food Guide Pyramid is available through Consumer Information Center, Department 159-Y, Pueblo, Colorado 81009 for $1.00.

Healthy Heart Food Charts are available free of charge from your local heart association.

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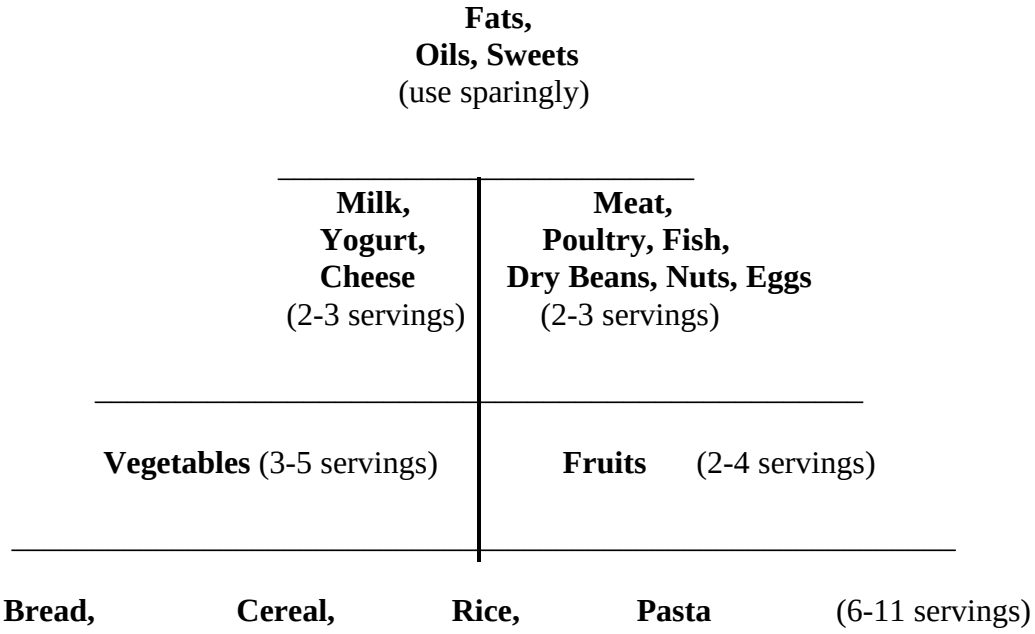
FOOD GUIDE PYRAMID
A Guide to Daily Food Choices



"Use the **Food Guide Pyramid** to help you eat better every day. Each of these food groups provides some, but not all, of the nutrients you need. No one food group is more important than another - for good health you need them all. Go easy on fats, oils, and sweets; the foods in the small tip of the pyramid."

Source: U.S. Department of Agriculture / U.S. Department of Health and Human Services

FOOD CHOICE CHART

FOOD	TOTAL CALORIES	FAT GRAMS
Milk, non-fat	86	0
Frozen yogurt	100	1
All vegetables	25	0
Ham	151	8
Chicken/turkey-white meat	140	3
Tuna fish	168	7
Shrimp	84	1
All fruits and fruit juices	60	1
Bread, white	153	2
Bread, wheat	138	2
Cereal, shredded wheat	153	1
Milk, 2%	121	5
Soup, chicken noodle	82	3
Cookie, chocolate chip	139	4
Milk, whole	150	8
Bacon	73	6
Spaghetti w/ meat sauce	239	10
Brownie	172	9
Potato chips	156	10
Pancakes	388	7
Ice cream bar	178	13
Taco	245	15
Chicken, fried	255	15
Chili with beans	272	11

Dressing, Italian	138	14
Hot dog with bun	264	15
French fries	210	13
Macaroni and cheese	399	18
Pizza, pepperoni	653	25
Cheeseburger, 1/4 lb.	629	36
Hoagie	1242	62
Lasagna	383	19

Source: the American Heart Association's *Dietary Guidelines for Healthy Americans*.

Name:_____

Computing Fat Calories

After reading an article entitled "Losing our Students to Fat Grams," you have become very interested in the amount of fat in your diet. With this in mind, you start keeping track of your fat intake. Complete the information on each meal chart. Use the Food Choice Chart to help you. The first meal has been started for you.
*Consider each item to be one serving.
*Remember: one gram of fat is equal to 9 calories.

Meal/ food	Total calories	Fat grams	Fat grams x 9	Calories from fat: $\frac{\text{fat g x 9}}{\text{total cal.}}$	% of calories from fat
BREAKFAST					
Cereal/2%milk	153 + 121	1 + 5	54	54/274	20%
Pancakes					
Bacon					
Fruit juice					
LUNCH					
1/4 lb. Cheeseburger					
French fries					
Whole milk					
DINNER					
Pepperoni pizza					
Carrot sticks					
Italian dressing					
2% milk					

ANSWER KEY FOR "COMPUTING FAT CALORIES"

Meal/Food	Total Calories	Fat Grams	Fat grams x 9	Calories from fat $\frac{\text{Fat g x 9}}{\text{total cal.}}$	% of calories from fat
Breakfast					
Cereal/2% milk	**153 + 121**	**1 + 5**	**54**	**54/274**	**20%**
Pancakes	**388**	**7**	**63**	**63/388**	**16%**
Bacon	**73**	**6**	**54**	**54/73**	**73%**
Fruit Juice	**60**	**1**	**9**	**9/60**	**15%**
Lunch					
1/4 lb ch. Burger	**629**	**36**	**324**	**324/629**	**52%**
French Fries	**210**	**13**	**117**	**117/210**	**56%**
Whole Milk	**150**	**8**	**72**	**72/150**	**48%**
Dinner					
Pepperoni Pizza	**653**	**25**	**225**	**225/653**	**34%**
Carrot Sticks	**25**	**0**	**0**	**0/25**	**0%**
Italian Dressing	**138**	**14**	**126**	**126/138**	**91%**
2% Milk	**121**	**5**	**45**	**45/121**	**37%**

Name_____

The cafeteria is planning a buffet luncheon for "Student Choice Day". They have asked for your assistance in planning the menu. Using the information from the Food Choice Chart and the Food Pyramid, plan a well-balanced meal that ha less than 30% calories from fat. Make sure you provide a wide variety of foods so that students will have many choices. Use this worksheet to record your information. Then follow the directions at the bottom of this sheet to compute the average. Good luck!

Menu Planning Worksheet

Meal/food	**Total Calories**	**Fat Grams**	**Fat Grams X 9**	**# of fat calories (fat grams x 9) total calories**	**% of calories from fat**

Add all percentages together to get the **TOTAL: _____**

Divide the total by number of food choices to get the **AVERAGE % OF CALORIES FROM FAT:_____**